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Kodachrome by Ralph Ca

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Some Nut-Producing Trees and Shrubs Beneficial to Forest Creatures

Autumn is the season that clearly reveals the value of mast-bearing trees as producers of food for wildlife. The leaves are rapidly disappearing and the nuts or other fruits are now clear to the view of even the most casual observer. Investigation underneath most mast-bearing trees at this time of the year will, generally, be rewarded by the discovery of nuts which have already dropped to the ground.

Mast is particularly valuable as wildlife food because it contains a high percentage of carbohydrates which produce heat and energy. These are important to both game birds and animals because they provide the essentials necessary to withstand the storms and cold weather of winter months.

The protein content of nuts, also, is high. This is necessary in rebuilding body tissue. So the value of such food for wildlife cannot be over-emphasized. A comparison of mast with other forms of wildlife food shows it to be the most important.

Years ago the native chestnut was the staple fall and winter food of deer, wild turkeys, grouse and squirrels. It was our most important wildlife food. This was proven when the Chestnut Blight destroyed it. Blight resisting oriental strains are now being grown in limited numbers throughout the State, but even with the best success it will be many years before a strain is developed to take the place of the old native American chestnut tree.

Since the disappearance of the chestnut, the most important mast-producing trees in Pennsylvania are the oaks. These, too, are threatened by the Oak Wilt, a disease which has played havoc with oak trees in Minnesota, Wisconsin, Iowa, Missouri, Il-

linois and Indiana. A single infection has been found in Pennsylvania and every effort is being made to locate any others, which might have started, before the disease gets out of control.

Perhaps a discussion of mast-bearing trees, by species, would be the most instructive approach for our readers. We will start with the chestnut and describe each in its turn.

Chestnut was our most valuable forest and wildlife tree before the advent of the Chestnut Blight which completely destroyed it. Sprouts of native trees are still to be found but unless the disease is soon conquered even these may perish.

The U. S. Department of Agriculture, Bureau of Plant Industry, has been experimenting for years with Oriental chestnuts. Lately various State Departments also have been active in this respect.

The Oriental chestnut tree is usually a short, wide-spreading tree. The nuts of the Chinese variety compare favorably with American chestnuts in both size and flavor. The Japanese variety produces a larger and less flavorsome nut.

Oriental chestnuts have been exposed to the blight for hundreds of years and have developed a high degree of immunity to it. They, and especially the Chinese variety, hold considerable promise as future important wildlife food.

More recently experiments, by the Federal Government, have shown that it may even be possible to develop a strain that will go far towards replacing the American chestnut as a forest tree.

In the meantime, the Pennsylvania Game Commission is raising Oriental chestnut seedlings and planting them for wildlife food.

Yum,
yum,
says
the
Gray
Squirrel
as he's
about
to crack
a
Hickory
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A little brother of the chestnut, the *Chinquapin*, is probably no less in importance as a game food than the chestnut. However, its natural range is confined more to the southern part of the State. The nut of the *Chinquapin* is very small and sweet. *Chinquapins* are susceptible to Chestnut Blight, although that disease has not been as destructive to them as it has been to the chestnut.

The Oaks, of which there are many, in addition to being valuable timber trees, have an equal importance as food bearers for deer, wild turkeys, grouse, bears, raccoons and squirrels. Crumbs dropped by squirrels when they are enjoying acorn dinners are relished by quail and songbirds.

The oak, as a producer of game food, can be considered in two classes. The first is the white oak group, comprising such species as the white oak, swamp white oak, post oak, burr oak, chestnut oak, and scrub chestnut oak. All of these mature their fruit in one year, and as a rule, the meat of the nut is sweet. The nuts of these are considered equal to the best of cultivated grains in their food value to birds and animals.

The second group is the black oak group which consists, among others, of the black oak, red oak, scarlet oak, pin oak, and scrub oak. In this group the fruit matures the year following flowering. The nut, as a rule, is bitter and considered inferior to those in the white oak group as wildlife food producers. Therefore, in planning for mast crops, in connection with food and cover development for wildlife, first consideration should be given to the white oaks. However, a plentiful supply of acorns of either group will fatten animals and birds and materially assist them to withstand the rigors of winter. The fruit (acorns) is available during the entire winter and can be secured anytime, provided snows do not become too deep.

The Walnut family comprises the walnuts, the hickories and the butternut. All of these reach a large size, are attractive ornamentally, produce valuable wood, and yield delicious nuts which are used by man and many wild animals, especially squirrels. Because of these attractive qualities, they have been cut so extensively that the supply of them has been seriously reduced. Therefore, it is especially desirable to make every effort to propagate these trees, by planting their seeds and by any other method which will assure success. A description of each follows:

The Black Walnut is one of the most valuable timber trees native to Pennsylvania. It yields delicious nuts which are produced in large quantities annually. Black walnut is a very exacting tree as to soil and location, preferring rich, moist soil, in rather warm and low areas. It requires much light, but will endure some shade while young. It does not thrive in the colder portions of the State nor at dry locations. Therefore, great care should be used in selecting suitable sites for planting the seeds.

The Butternut does not attain as large a size, nor produce as valuable timber as the black walnut, but bears nuts which contain delicious, sweet and oily kernels. These are frequently preferred to black walnuts by both man and wildlife. This tree is found locally throughout the State in rich bottom land, and on moist fertile hillsides. It will thrive better than the black walnut at higher elevation, and in the northern part of the State.

The Shagbark Hickory attains the largest size of our native hickories and produces delicious nuts which are sold commercially. It is found on rich, moist, well-drained soils such as those along streams and the borders of swamps, but is more common on hill slopes and even rather rocky hillsides. It is light-demanding and will not thrive in dense stands, unless it dominates the neighboring trees. It is

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a prolific seeder and may be propagated extensively but should not be planted in the colder and mountainous parts of the State.

The Shellbark Hickory is much the same in appearance as the shagbark hickory but does not attain the height of that species. It also is found along river bottoms, even those which are inundated for long periods of time.

The Mockernut Hickory is a medium-sized tree which produces a fruit similar in appearance to the shellbark hickory, but upon opening the shell one finds a very small kernel. It is rare or absent in the northern part of the State and should be planted only in rather low, fertile areas in valleys and the foothills of the mountains. The fruit is practically valueless to man, but furnishes satisfactory food for wild animals of the forest.

The Pignut Hickory is found on dry ridges, hillsides and mountain slopes. It will grow in all parts of the State on a great variety of soils. The fruit is variable in form, and contains small, bitter kernels. This species may be planted in the mountains where no other hickories or walnuts will thrive.

Beech is also a mast producer valuable as a wildlife food. Unfortunately, the supply is produced only infrequently and is therefore not dependable. Despite this, it is relished when available for the kernels are small, sweet and nutritious. The nuts are relished by many forms of wildlife, including deer, bears, squirrels, grouse, wild turkeys and raccoons.

This tree attains a medium height. It prefers deep, fertile, well-drained soils, but will grow in a variety of situations. It is commonly associated with the northern hardwoods (beech, birch, maple, etc.) and is also found with white pine and hemlock.

Hazelnuts or Filberts are mast-bearing shrubs three to eight feet

high. The fruit is sweet and avidly sought after by both man and wildlife. This shrub grows on well-drained, loamy soils and is usually found below 2,000 feet elevation in the valleys, hills and lower slopes of the mountains. It is a thicket-forming shrub but seldom bears fruit in the shade.

The best time to plant the seeds of walnuts, hickories, oaks, etc., is in the autumn as soon as the fruit is ripe and falls. Wait until the nuts are fully ripened. The seeds should be planted at once for their vitality is impaired or even destroyed if they are allowed to dry. If fall planting is not possible, the seeds should be stratified in moist sand and kept until the following spring.

To stratify seed, take a box or other container, bore or cut a few small holes in the bottom, and bury it in the garden so that the top will be about even with the top of the ground. Place about two inches of damp sand in the bottom of the box, then a solid layer of nuts, then another two-inch layer of sand, another layer of nuts, and so on until the top layer is moist sand three or four inches deep. Then make a mound of garden soil six or eight inches over the top of this. To prevent damage from squirrels or other rodents use wire hardware cloth on the top and outer edges of the box, or better still, use a tin box covered with wire cloth. In either case allow the box to remain in this manner until spring when the frost is out of the ground. At that time lift the nuts and plant.

Seeds should be planted where the trees are expected to remain, because walnuts, hickories and oaks are difficult to transplant on account of the long tap-roots which develop during the first year. Even when great care is exercised in transplanting, the tap-root is frequently cut or injured to such an extent that the future growth of the tree is impaired. The hulls of

the seed should be broken open or entirely removed before planting.

The best locations to plant the seeds are in old, abandoned fields, along fencerows, and open spots in the forest. Select moist, fertile and open sites. In planting, make a hole about two to four inches deep in the ground and drop a nut in it, then cover with ground.

Species such as chestnut should be left to those who have specialized in

its reproduction. Oaks and beech are generally reproduced naturally in sufficient quantities. But walnuts, hickories and hazelnuts are not present in the quantities desired. Your help in planting them will be a welcome supplement to the Commission's wildlife food and cover development program, and especially aid in providing food for squirrels, an important game animal which is too often taken for granted.



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